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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/055,275	01/23/2002	Franco Motika	POU920000057US1	6761

7590

08/24/2004

Lynn L. Augspurger
IBM Corporation
2455 South Road, P386
Poughkeepsie, NY 12601

EXAMINER

TORRES, JOSEPH D

ART UNIT	PAPER NUMBER
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2133

DATE MAILED: 08/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/055,275

Applicant(s)

MOTIKA ET AL.

Examiner

Joseph D. Torres

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 April 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 April 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: "10" in line 23 of page 1 and "14" in line 1 of page 2. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: "14", "138" and "142" in Figure 1. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet,

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even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

2. The abstract of the disclosure is objected to because it exceeds 150 words and exceeds more than one paragraph. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-7 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claim 1 recites, "flat pseudo random pattern". Nowhere does the Applicant explicitly define what a "flat pseudo random pattern". *Teleflex Inc. v. Ficosa North America Corp.*, 63 USPQ2d 1374, 1381 (Fed. Cir. 2002), *Rexnord Corp. v. Laitram Corp.*, 60 USPQ2d 1851, 1854 (Fed. Cir. 2001), and MPEP 2111.01.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 107 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the weighting pattern generators receipt" in line 6. There is insufficient antecedent basis for this limitation in the claim.

Claim 1 recites the limitation "the associated random pattern generator" in line 7. There is insufficient antecedent basis for this limitation in the claim.

Claim 1 recites the limitation "said weighted pseudo random pattern" in line 9. There is insufficient antecedent basis for this limitation in the claim.

Claim 1 recites the limitation "said weighted pattern" in line 10. There is insufficient antecedent basis for this limitation in the claim.

Claim 1 recites, "to enable provision of different weights to the storage elements".

There is insufficient antecedent basis for this limitation in the claim. The Examiner is assuming --to enable provision pseudo random patterns of different weights to the storage elements--.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 2, 4, 7, 8 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Eichelberger; Edward B. et al. (US 4687988 A, hereafter referred to as Eichelberger).

35 U.S.C. 102(b) rejection of claims 1, 8 and 9.

Eichelberger teaches a pseudo random pattern generator for generating at least one flat pseudo random pattern (LFSR 100 in Figure 1 and 2 of Eichelberger is a pseudo random pattern generator for generating at least one flat pseudo random pattern; Note: an LFSR generates test patterns substantially with as many zeros as ones, hence is a flat pseudo random pattern generator having no weight); weighting circuits for providing a selectable weight set to said flat pseudo random patterns (Weighting Circuit 300 in Figure 3 and 300-1 to 300-96 in Figure 4 of Eichelberger teaches weighting circuits for

providing a selectable weight set to said flat pseudo random patterns; col. 8, lines 13-53 in Eichelberger teaches that the weighting set comprises $\{0, \frac{1}{4}, \frac{1}{3}, \frac{1}{2}, 1\}$; a storage element associated with each of the weighting pattern generators receipt of a random pattern from the associated random pattern generator (Col 10, lines 34-43 in Eichelberger teaches an LSSD shift register storage element for each of the inputs of DUT 50 in Figure 4 of Eichelberger associated with each of the weighting pattern generators receipt of a random pattern from the associated weighted random pattern generator 300-1 to 300-96); and a selection circuit for individually addressing each of the storage elements for providing said weighted pseudo random pattern to said scan chains independently of one another for scanning said weighted pattern to said logic circuits to enable provision of different weights to the storage elements (each of the weighted random pattern generator 300-1 to 300-96 has a selection circuit MPX 305 in Figure 3 for individually addressing each of the LSSD shift register storage elements for each of the inputs of DUT 50 in Figure 4 of Eichelberger for providing said weighted pseudo random pattern to said LSSD scan chains independently of one another for scanning said weighted pattern to said logic circuits to enable provision of different weights to the storage elements; Note: col. 2, lines 45-50 in Eichelberger teach that the weighting of the applied test patterns is a function of the number and kind of internal circuit elements that are directly or indirectly affected by an input signal on the respective input terminals of the device, hence the storage elements for providing said weighted pseudo random pattern to said scan chains are addressed independently of one another for scanning said weighted pattern to said logic circuits to enable provision

of different weights to the storage elements since the weighting can depend only on the number and kind of internal circuit elements that are directly affected by an input signal on the respective input terminals of the device).

35 U.S.C. 102(b) rejection of claim 2.

Eichelberger teaches said weighting circuit 300 in Figure 3 of Eichelberger comprises a weight generating circuit comprising AND gates 301-304 and a weight selecting circuit MPX 305.

35 U.S.C. 102(b) rejection of claims 4 and 7.

Eichelberger teaches said storage elements are each a first stage of an associated LSSD scan chain (Col 10, lines 34-43 in Eichelberger teaches an LSSD shift register storage element for each of the inputs of DUT 50 in Figure 4 of Eichelberger associated with each of the weighting pattern generators receipt of a random pattern from the associated weighted random pattern generator 300-1 to 300-96).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
6. Claims 3, 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eichelberger; Edward B. et al. (US 4687988 A, hereafter referred to as Eichelberger) in view of Koenemann; Bernd K. F. et al. (US 5612963 A, hereafter referred to as Koenemann).

35 U.S.C. 103(a) rejection of claims 3, 5 and 6.

Eichelberger, substantially teaches the claimed invention described in claims 1 and 2 (as rejected above). Note: the weighting circuitry 300-1 to 300-96 in Figure 4 of Eichelberger are external to IC DUT 50 in Figure 4 of Eichelberger, hence said weighting circuit 300-1 to 300-96 includes means for receiving a weighting instruction from an external source to said integrated circuit DUT 50.

However Eichelberger does not explicitly teach the specific use of BIST technology whereby the Weighting circuitry 300-1 to 300-96 in Figure 4 of Eichelberger are part of the integrated circuit under test.

Koenemann, in an analogous art, teaches use of BIST technology whereby the Weighting circuitry are part of the integrated circuit under test (see col. 3, lines 1-3 and Figure 4 in Koenemann).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Eichelberger with the teachings of Koenemann by including use of BIST technology whereby the Weighting circuitry 300-1 to 300-96 in Figure 4 of Eichelberger are part of the integrated circuit under test. This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that use of BIST technology whereby the Weighting circuitry 300-1 to 300-96 in Figure 4 of Eichelberger are part of the integrated circuit under test would have provided the opportunity to allow for self-testing.

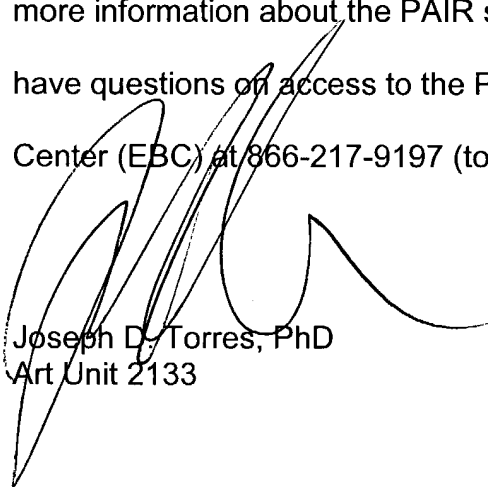
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph D. Torres whose telephone number is (703) 308-7066. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached on (703) 305-9595. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Joseph D. Torres, PhD
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